# GEOGRAPHIC SCHOOL BULLETINS

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# INDIA

UMI

noisy Hardwar bazaar. On the Hooghly River, 85 miles upstream from the Bay of Bengal, Calcutta's harbor (below) bustles with freighters trading in iron ore, jute, tea, coal, and textiles.

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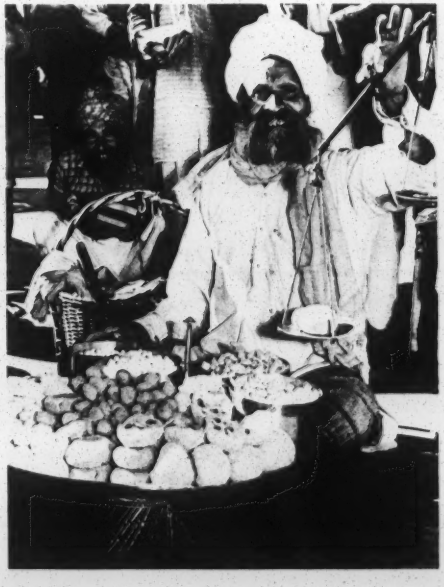
The nation struggles to emerge, like the butterfly from the cocoon, as a single, modern India. Many obstacles stand in its way.



India is big, poor, and crowded. A triangle of land jutting between the Bay of Bengal and the Arabian Sea, it measures almost 2,000 miles from Himalayan snows to the green coastal lowlands of the south. Its width, from western deserts to the jungles of the east, is nearly as great. In all it covers 1,173,904 square miles. With the northern border on the same latitude as South Carolina, most of India is hot for three months of the year and hotter for the other nine months. (Map, page 71.)

Less than half the size of the United States, India holds 400,000,000 people, more than twice the population of the United States—making it the world's most populous democracy.

Although cities are thronged, eight out of ten Indians live in villages—half a million of them. Few roads lead in or out; many villages have not even cart tracks.

The typical village home is one or two rooms of adobe with thatch or tile roof. Meals are cooked on a mud stove in the back yard; leaves serve as plates for meager portions of rice and vegetables. Farm plots, made smaller each generation by division among sons, surround the village. Should the monsoon rains fail, death stalks millions.



NATIONAL GEOGRAPHIC PHOTOGRAPHER JOSEPH BAYLOR ROBERTS, ABOVE; HELEN AND FRANK SCHREIDER

UMI

HELEN AND FRANK SCHREIDER. COVER. W. SUSCHITZKY, PIX

# INDIA

## *World's Most Populous Democracy Balances Tradition, Progress*

TO THE AMERICAN MIND "India" conjures up bejeweled silk-clad maharajas, women in rainbow saris, snake charmers, the Taj Mahal, trained elephants, steaming jungles infested with tigers and cobras, and teeming cities pushing down to the river's edge, like Hardwar, above.

Such an image is accurate, but not complete. Actually, there are three Indias. In traditional India, village women collect cow dung and dry it in the sun. They use it for fuel; wood is scarce and coal expensive. Girls walk tall and straight from the village well—which they share with the cows—jugs of water balanced on their heads. Little carts, on creaking wheels, jolt to market behind sturdy bullocks.

But in new India plans speed forward for an atomic power station scheduled to open by 1965. This is the India of Le Corbusier's ultra-modern dream city, Chandigarh, capital of India's Punjab. In Jamshedpur the smokestacks of the largest iron and steel works in Asia pierce the skyline.

And there is the India that combines both old and new. Great dams push electricity to new industries and water to bearded farmers on parched plains, while a plodding camel powers an ancient water wheel on the road to Chandigarh. In New Delhi, modern national capital, the Republic Day parade features jet planes and painted elephants. Spear-carrying Assam warriors plod behind tanks and armored cars.

An old Sikh, wearing his distinctive turban and beard (below), weighs sweets in a



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Western missionaries brought Christianity. Jains broke off from Hinduism; their nuns wander barefoot, begging food. They wear masks to avoid swallowing and killing germs or insects.

Another factor that divides India is the caste system. Caste has pigeon-holed Indians for centuries, determining a man's work, home, and associates. Members of different castes did not dine together or intermarry. If his father was a merchant, the boy became a merchant. If father was an untouchable, the son, like generations before him, could do only the dirtiest jobs.

The caste system is dying slowly. Untouchability has in theory been outlawed and these people have full citizenship. Inter-caste marriage is still rare.

A government-sponsored plan attempts to lift villagers from poverty. Roads are built; electric pumps replace the water wheel; schools rise; land is reclaimed. New ways of farming begin to seep into the villages.

India believes rapid industrialization will unlock prosperity. More than half the cost of its second Five Year Plan is devoted to it.

"Now her products," report Helen and Frank Schreider in the October 1960 *National Geographic*, "range from bicycles and automobiles to steam locomotives and light aircraft, from fertilizers and cement to radio-isotopes, from telephones and cable to machine tools and heavy electrical equipment. Industrially, India is a potential giant, though up to now her production has barely scratched the surface of her demand."

L.B.

W. SUSCHITZKY, PIX

UMI

RICHARD HARRINGTON, BELOW, HELEN AND FRANK SCHREIDER

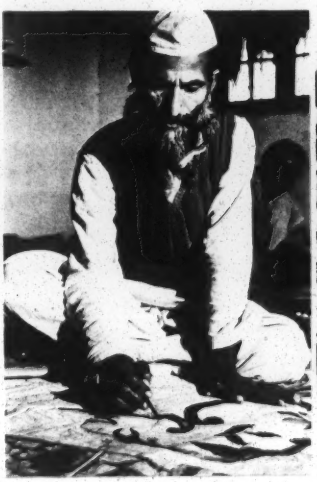
Although about eight out of ten Indians farm, and India is a world leader in the production of tea, rice, peanuts, sugar cane, cotton, and wheat, still there is not enough to eat. Garden-size farms are large enough to feed only those who till them. They are too small to allow the use of machinery, too small to bring in enough money to buy more land or tools. The village women at right trudge the dusty road to Calcutta to sell their big homemade grain storage baskets.

An ancient country often invaded, India holds many races. They speak 845 languages or dialects. The nation has 14 official tongues, with Hindi established as the national speech although less than half of the people use it.

Most Indians are Hindus (see page 66), but other sects share the country. Moslems conquered India in the 11th century. Still in evidence are their mosques, mausoleums, formal gardens, and strongholds, such as Delhi's Red Fort, bottom. Partition in 1947 gave Moslems a country of their own, Pakistan, but many chose to remain in India. Sikhs bridge the gap between Hinduism and Islam. Like Hindus, they cremate their dead and eat no beef. Like Moslems, they worship only one God and oppose the barriers of caste.



**Rugmakers' art**—The designer below draws a pattern to guide weavers as they work the rich-piled rugs of India. Shears at right trim the finished carpet.



**A Mogul emperor** brought Persian weavers to India, installed their looms in his court. Now the Mirzapur area supports the world's largest hand-loomed rug industry. Sixty thousand weavers work at home, women spinning yarn, men toiling at looms, children helping. Hand-weaving engages more than 2,000,000 Indians. Were India's looms to stop, every twentieth man would lose his daily wage.

The long-haired *sadhu*—holy man—at left smears his body with ashes on a Benares bathing ghat. He dedicates his life to meditation and prayer, lives by the begging bowl.

Long before the time of Christ, Buddha, or Moses, sages sang sacred songs on India's river banks. Eventually, a variety of ideas and practices melted into one religion.

Its first gods were natural forces—sun, wind, fire. As the concept of one God grew, Hindus adopted it. However, they worship some 330,000,000 gods and goddesses—each a manifestation of the one Supreme Reality, or God.

The three chief gods are Brahma, Creator of all things; Vishnu, the Preserver who sustains life; and Siva, the Destroyer, who makes way for new life. All have wives, sons, daughters, and, in the case of Vishnu, nine incarnations. Understanding one is a step to understanding the perfect whole God.

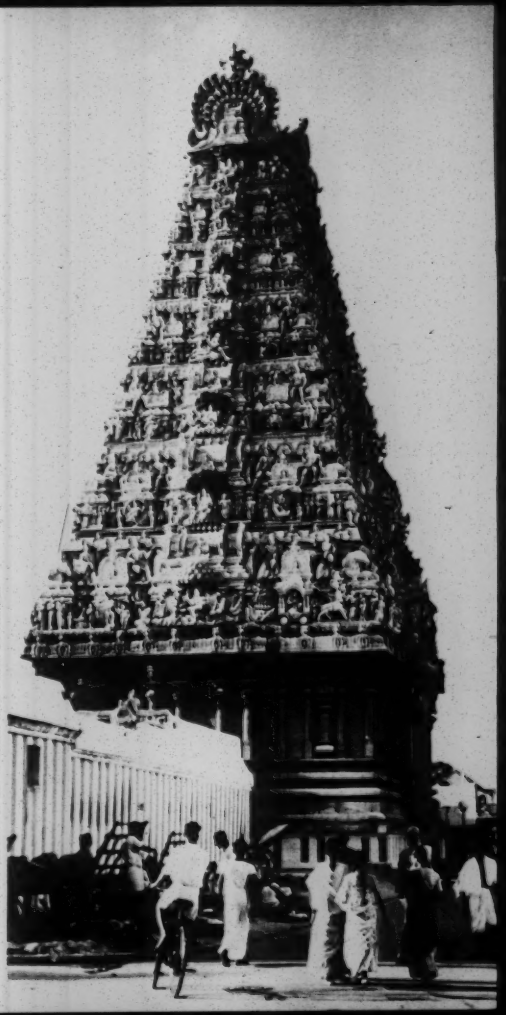
The ancients recognized the fact that all things eventually change. They noticed that life continues to recur: the caterpillar turns into a butterfly, the butterfly egg becomes a caterpillar. So, they said, life is constantly reborn, passing up the scale from vegetable to animal to man and from one human to another. Behind this constant change something unchanging must set the motion going: Brahman, or God.

The Hindu seeks not the changing things of this world, but understanding of the enduring God and union with It. The world is a school where all living things strive for wisdom.

The Indian caste system is bolstered by belief in reincarnation. One's lot in life is the result of one's action in a past life. A Brahmin, member of the highest caste, could sink to a pig in the next incarnation if he behaves like one in this.

About 85 per cent of the Indian people are Hindus. Temples like the one in Madras (right) punctuate city skylines. Harmony with all life makes many Hindus vegetarians. Cows, especially sacred because they pull plows and provide milk and fuel, are cared for, fed as a religious act, but never slaughtered. L.B.





JOHN E. FRAZER, TOP LEFT; HELEN AND FRANK SCHREIDER

UMI

**Forehead striped** with the mark of Vishnu, a worshiper at Allahabad reads scriptures, preparing for a ritual bath. He uses the beads draped on his leg to count the Hindu names for God. The brass bowl holds water from the sacred Ganges.

# *GREAT RELIGIONS I* — Hinduism

AT A TIME fixed by astrologers, Hindu pilgrims converge near Allahabad to wade into the Ganges River to cleanse their souls of ignorance and replace it with wisdom (below).

All rivers of India are holy (for they nourish crops), and the Ganges is holiest of all. The man about to die wants only to travel to Benares where he can purify his spirit and have his ashes thrown into the turbid stream, insuring his soul's climb to a higher existence.

This is one aspect of the Hindu's life. There are many, varying among the dozens of sects within the embrace of Hinduism. The religion is so complicated that teachers sit day by day, surrounded by listeners, expounding its subtleties.

The Hindu's religion permeates his life from worship before sunrise through midday prayers and devotions before the evening meal. In between, a Hindu meditates on scriptures. Each home has a corner reserved as a shrine. Religion is the theme of almost all Indian art, literature, and drama, including more than half the motion pictures.

One of the world's oldest living religions, Hinduism traces its origins back 4,000 years. It counts nearly 350,000,000 followers, most of them in India, but some in Ceylon, Burma, Pakistan, Bali, and Trinidad.

When Moslems swept into India in the 11th century, Hindus accepted them as another sect, and honored Mohammed, the founder, as another holy man. When Christianity touched India possibly 1,900 years ago, some Hindus took Christ as another incarnation of one of their own gods.

This tolerance is necessary to Hindu ideals. The devout Hindu strives for purity, self-control, detachment, truth. He respects all life.



NATIONAL GEOGRAPHIC PHOTOGRAPHER VOLKMAR WENTZEL, BELOW AND LEFT

NGS PHOTOGRAPHER VOLKMAR WENTZEL. BELOW, W. SUSCHITZKY, PIX

As the islets merged and grew into Bombay Island, about 30 square miles in area, docks indented the shore line and railways linked it to mainland cities. The first cotton mill was built in 1854. The Suez Canal, opening in 1869, shortened the journey between East and West, and trade with Europe boomed.

The city spread to much larger Salsette Island and today holds a teeming population of more than three million, surpassed in India only by Calcutta. Like New York, which also grew out of a harbor, Bombay is a melting pot. One sees brilliant costumes and varied headgear marking persons from all parts of India and from all castes. There are Moslems, Jews, Parsis, Europeans, and a steady stream of Gujurat villagers looking for work in their big city.

Cotton from the rich, black lava soil of the outlying districts rolls into Bombay's mills, humming now where rice fields once stretched, and making the city the center of the Indian textile industry. Machine shops, chemical works, woolen mills, oil refineries, even a research atomic reactor have spread industry beyond the suburbs.

Sari-clad women shop in modern department stores. The bullock cart, which clutters many an Indian city's streets, has been outlawed in Bombay. Air-conditioning replaces fans, and taxis honk the old hansom cabs to the side of the road—permanently.

Still, traditional India remains. In old market places the shopkeepers sit cross-legged on the floors of their stores, haggling over the prices of brassware, cutlery, jewelry, clothing, and such fruits as bananas, mangoes, oranges, guavas, and pomegranates.

Dancers, like the bejeweled girl on the cover, perform traditional, symbolic routines. Each movement of hands, eyes, or body conveys a specific meaning.

Cows, because they are sacred to Hindus, freely walk the city's streets. And Koli fishermen still sail hopefully each dawn.



UMI

JOSEPH NETTIS

# BOMBAY

## Bustling Port Thrives on World Trade

BOMBAY PUSHES an open claw into the Arabian Sea as though clutching the trade that has made it India's second-largest city. Residential Malabar Hill, in the foreground of this picture, forms the shorter finger of the claw, while the massed buildings of downtown Bombay fill the longer one. Between lies Back Bay. The main harbor faces the mainland on the other side of the peninsula-claw.

Seven mud-circled islets originally, Bombay joined them by filling channels and enlarged them by reclaiming shallows until only the flats of Chaupati, at low tide, show in this scene. Chaupati Beach, to the left, is often jammed with bathers at high tide.

Marine Drive, two miles long and 140 feet wide, India's first dual highway, runs behind the seawall on reclaimed land toward the seaward tip of Bombay Island. The University Library and Clock Tower juts 260 feet above the center of the city.

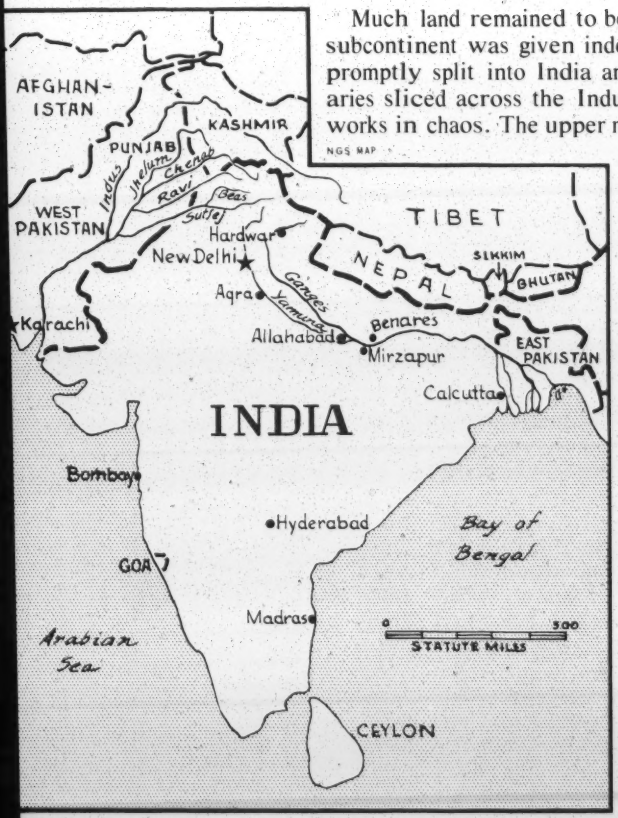
Were these turbaned sight-seers to guide us into the streets behind this crescent shoreline, we would see a city pulsing with life.

Men like the ones in the picture (below right) paint advertisements of the latest movie to come out of this Indian film capital. Flocks of *dhobis*—laundry boys like the ones in the photograph at the bottom—scrub clothes in an old-fashioned open air "laundromat." A wandering acrobat who follows fairs from city to city entertains a street audience. The smoky trails of a near-by industrial district lead from factory chimneys to the sky.

These are all part of everyday Bombay. It resembles other Indian cities in that the very old meets the very new in its streets. But it grew for the simple reason that it was India's best port nearest Europe.

Once no one wanted the pestilential area. Tigers roamed what is now a residential section. Only primitive Koli fishermen lived there, putting to sea in little boats, praying for a good catch in a temple to their goddess Mumbai—from whose name we get Bombay.

Charles II of England got the islands as part of his Portuguese bride's dowry. He in turn leased them to the British East India Company for 10 pounds a year.



NGS MAP

Much land remained to be reclaimed when in 1947 the subcontinent was given independence from Britain—and promptly split into India and Pakistan. National boundaries sliced across the Indus system, and left the water works in chaos. The upper reaches of many tributaries lie in India, but their waters course into Pakistan. The headwaters of some of the big irrigation canals remain in India, while the canals themselves run through Pakistan. The boundary set off more than a decade of disputes between the two countries over water rights, for water means life to both.

Today about 50,000,000 people—40,000,000 Pakistanis, 10,000,000 Indians—depend on the Indus system for water. Most are farmers with small plots of land planted to wheat, cotton, rice, sugar cane, fodder, and fruit.

Despite the crying need for water, much of the precious flow of the Indus is wasted. Perhaps 80 per cent flows unused into the Arabian Sea.



NATIONAL GEOGRAPHIC PHOTOGRAPHER JOSEPH BAYLOR ROBERTS

UMI

# INDUS RIVER, Artery of Life for Millions

BORN IN TIBET of Himalayan glaciers and monsoon rains, the young, slim river tumbles along a bed of rocks three miles high. Swollen by melted snow and mountain streams, twisting and squirming through chinks in the mountain wall, it sweeps under a bridge at Kargil, Kashmir, below, pursuing a northwesterly course as it seeks a route down to the sea.

Finding no path, the river writhes west, and south, and attacks its mountain prison with pent-up fury. It crashes through gorges and pours out on the arid Punjabi plains. Gathering rivers to it from east and west, it widens and races southward until, 1,900 miles from its icy birthplace, it meets the warm Arabian Sea.

MOHAN BHAVNANI

Indus is the river's name. It comes from *sindhu,* "river" in Sanskrit, ancient language of the region. The name of the subcontinent derives from the same source, but the Persians corrupted it to "Hindu" and the Greeks, to "India."

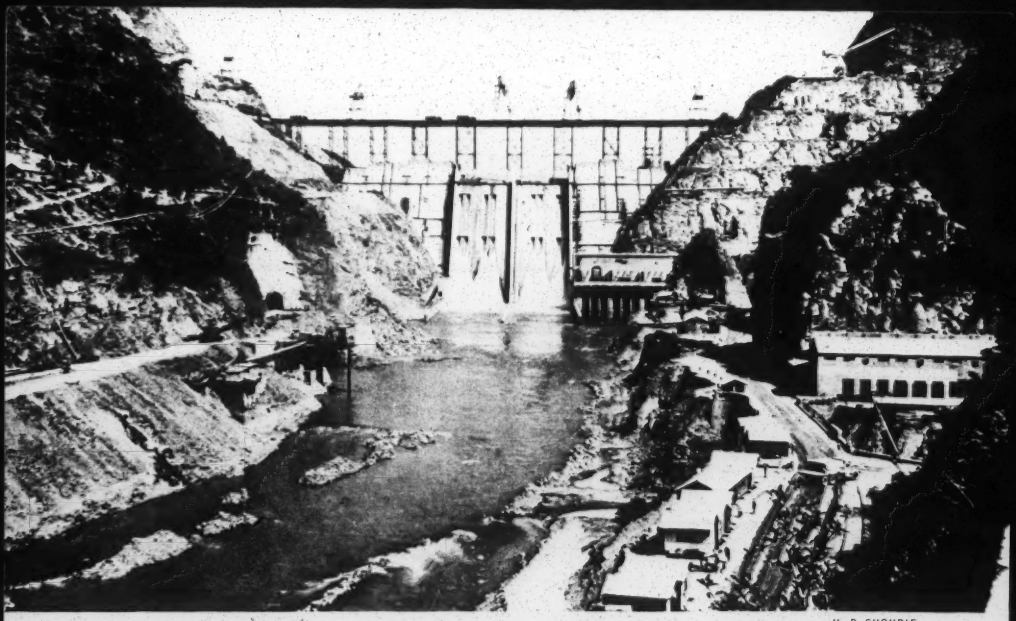
The Indus, with its five major tributaries—the Chenab, Jhelum, Ravi, Beas, and Sutlej—forms one of the great river systems of the world. Its annual flow is enough to drown Texas under a foot of water.

Much of the land along the Indus valley is semi-desert. But 5,000 years ago, forests flourished. Great cities of brick houses and tree-lined avenues thrived on the produce of the soil. Then something happened; perhaps wars destroyed forests and crops, perhaps the climate changed. As the vegetation decreased so did rainfall. Today the fertile past is recalled only by an occasional mirage—and the dreams of planners who hope to tame the mighty Indus and make it work for them.

When the summer monsoons come, the Indus overflows its banks, but the sandy soil cannot hold the precious water. The rest of the time the sun-baked land beside the river remains a dry plain. Summer temperatures of 120 degrees Fahrenheit are not rare. January temperatures reach 80 degrees.

Since primitive times, some irrigation has been carried on. With its help, the Punjab became the richest agricultural region in British India. Water flowing through man-made veins, radiating from the Indus and its tributaries, turned barren wilderness into lush farmland.

Areas along the lower reaches of the Indus—which even the monsoons pass by—also bloomed under irrigation. An immense diversion dam at Sukkur, below, was built in 1930 to water the valley. Cotton and wheat production soared.



H. D. SHOURIE

## *India and Pakistan Agree to Share Waters of the Indus System*

FOR THE FIRST TIME in 13 years the waters of the Indus flow untroubled to the sea. India and Pakistan have put a stop to bitter quarreling and have agreed to share the flow. India takes the water of the three eastern rivers—the Ravi, Beas, and Sutlej—and Pakistan has free use of the Indus itself, plus the Jhelum and Chenab.

With help from the World Bank, the two nations are undertaking the world's largest irrigation project to reclaim more land in the parched Indus region. At a cost of a billion dollars and 10 years, eight big irrigation canals totaling 400 miles in length will turn millions of acres of desert into productive farmland. Three new dams will rise to generate power for factories and homes. New reservoirs will hold water against flood and drought.

Power and irrigation will bring new life to both Indians and Pakistanis. Realizing this, neither country was idle during their long dispute; both went ahead building dams on their own.

Prime Minister Nehru of India has called the dams now going up across his country the nation's "new places of pilgrimage." They are dedicated to freedom from want.

Symbolic of Mr. Nehru's "new temples of our faith" is Bhakra Dam, above. High in India's northern Himalayan foothills, the Sutlej River cuts through a mountain gorge just before it heads for the Indus. Here Bhakra Dam rises to plug the river. Behind its mammoth concrete wall, a reservoir stores the river's water to generate electricity for new power-hungry fertilizer factories and railway-car shops.

In addition, the dam offers water to 10 million acres of thirsty fields. In a new industrial center at the foot of the dam, set up for the workshops of dam engineers, the Indian government added hospitals, schools, nurseries, and recreation centers.

Across the Pakistan border similar works are in progress. Between the Indus and the sometimes wild Jhelum River in the northwestern Pakistani Punjab lies the Thal Desert, a land as big as Wales that holds only sand dunes, wild shrubs, and a few villages clustered about the rare wells. Pakistan dammed the Indus and dug channels from the rivers. Bulldozers graded the land. Canals now feed rows of tangerine trees and wheat, sugar cane, and cotton. New roads stripe the sand. Cotton and woolen mills, dairy farms, and schools replace the dunes.



UMI